See below on the Calgon process. PFCS do not breakdown until at least 1100 degrees C. Calgon seems to have that covered. Not sure where you ended up with evaluation, as I recall steam was used for the DEP vendor?

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From: Azzam, Nidal [mailto:Azzam.Nidal@epa.gov]
Sent: Thursday, June 23, 2016 2:03 PM
To: Jennifer Griffith; DeRosa, Pat; Iott, Traci; ernie.panciera@dem.ri.gov; craig.roy@dem.ri.gov; Amy.Parmenter@health.ri.gov; Paul.kulpa@dem.ri.gov; Nicholas.noons@dem.ri.gov; Pamela.crump@dem.ri.gov; kelly.owens.dem.ri.gov; Metz, Chloe; Loughlin, Anni; Jennings, Lynne; Cassidy, Meghan; Lovely, William; david.w.wright.maine.gov; jay.naparstek@state.ma.us; John Regan; Kloo, Ken; Kenneth Feathers; Patrick Bowe; Richard Spiese ; Scott Whittier; Trish Coppolino; Brian Beneski; Margaret Bradley; Cole, Phil; Malinowski, Kerri; Maybury, Steve; shannon.pociu@ct.gov
Subject: RE: Reminder: PFAS - States/EPA Roundtable Call Tomorrow - June 23rd - and AFFF disposal info

Below is the process that Calgon uses for carbon reactivation

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As follow up to our phone conversation last week, I wanted to provide you some further information on the thermal reactivation of spent carbon (specifically containing adsorbed

PFC's) and the destruction of adsorbates (including PFC's) on activated carbon.

Spent activated carbon containing PFOS/PFOA and other PFC's can be and has been reactivated for over 10 years by Calgon Carbon Corporation.
Reactivation is a high temperature process (in the range of 1800 deg F) for thermal destruction of adsorbed chemicals, after which the reactivated carbon can be reused.

Calgon Carbon has worldwide spent carbon reactivation facilities. Some facilities handle industrial, non hazardous spent carbons.
Others will reactivate potable water (municipal) and food grade spent carbons via custom reactivation (segregated) in dedicated food grade furnaces and kilns (non hazardous spent carbons).
In 'pool ' reactivation (where many approved spent carbons are reactivated together and the PFC application spent carbons have been reactivated to date), the reactivated carbon is able to be reused in non potable/non food grade applications, such as wastewater treatment or water remediation applications. Calgon Carbon has such facilities that handle non RCRA hazardous and RCRA hazardous spent carbons, in PA and KY.

Prior to return of any spent carbon for reactivation by Calgon Carbon, from a given application, the generator must complete a waste profile document and submit to Calgon Carbon a representative spent carbon sample for testing. This testing is designed to make sure we can safely and effectively reactivate the carbon. Upon successful completion of the testing, the application/customer would then be issued a Carbon Acceptance Number (CAN) that is used for return of the spent carbon for reactivation. We periodically recertify approved spent carbons per our plant permits.

Carbon reactivation is a thermal treatment process in which adsorbed chemical constituents are removed from spent activated carbon to produce a recycled, reactivated product for beneficial reuse by Calgon Carbon Corporation's customers . The desorbed chemical constituents are thermally destroyed in the reactivation process. The spent activated carbon enters the furnace and passes through multiple hearths at increasingly hotter temperatures (max temperature of approx 1850 deg F). During this process any remaining water is vaporized, organic adsorbate (including PFC's) desorb and volatilize (for PFCs, including volatile
fluorides) into the furnace atmosphere. Desorbed organic compounds begin to combust within the furnace (for PFCs, HF is formed from the volatile fluorides). Some volatile organics may be charred or carbonized on the surface of the carbon as temperatures exceed 1000°F.

The furnace exhaust gases exit to an afterburner where any volatile organics that survive the furnace are combusted at temperatures in excess of 1600°F. Carbon monoxide can also be oxidized. The furnace is equipped with air pollution control equipment, which minimizes the release of air contaminants to the atmosphere. Furnace off-gases exiting the top of the furnace are treated in series by an integral afterburner, a dry scrubber/spray dryer unit (which removes acid gasses such as HF), and a baghouse-

type dust collector (which removes particulate matter coming from the afterburner and spray dryer, as well as any dust from the furnace).

Any wastewater from the process, including contaminated stormwater, is treated through our wastewater treatment process and discharged in accordance with that plant's wastewater discharge permit.

Solid waste disposal of wastewater fines, baghouse dust , solids from the scrubber system, and /or slag and refractory from the furnace are handled in a variety of ways (i.e. cement kiln processing, RCRA permitted landfills). Where we reactivate hazardous and non hazardous spent carbons, the solid wastes are considered hazardous waste and are treated in a permitted system. At other reactivation facilities, the solid wastes are characterized and disposed accordingly.

If you have any further questions on carbon reactivation, please let us know.
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Nidal Azzam,
Base Program Management Section, Chief

Hazardous Waste Programs Branch

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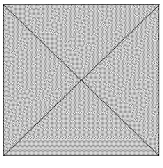

From: Jennifer Griffith [mailto:jgriffith@newmoa.org]

Sent: Wednesday, June 22, 2016 11:13 AM
To: DeRosa, Pat <Pat.DeRosa@ct.gov>; Iott, Traci <Traci.Iott@ct.gov>; ernie.panciera@dem.ri.gov; craig.roy@dem.ri.gov; Amy.Parmenter@health.ri.gov; Paul.kulpa@dem.ri.gov; Nicholas.noons@dem.ri.gov; Pamela.crump@dem.ri.gov; kelly.owens.dem.ri.gov <kelly.owens@dem.ri.gov>; Azzam, Nidal <Azzam.Nidal@epa.gov>; Metz, Chloe <Metz.Chloe@epa.gov>; Loughlin, Anni <loughlin.anni@epa.gov>; Jennings, Lynne <Jennings.Lynne@epa.gov>; Cassidy, Meghan <Cassidy.Meghan@epa.gov>; Lovely, William <Lovely.William@epa.gov>; david.w.wright.maine.gov <david.w.wright@maine.gov>; jay.naparstek@state.ma.us; John Regan <john.regan@des.nh.gov>; Ken Kloo <ken.kloo@dep.nj.gov>; Kenneth Feathers <kenneth.feathers@ct.gov>; Patrick Bowe <patrick.bowe@ct.gov>; Richard Spiese <richard.spiese@vermont.gov>; Scott Whittier <scott.whittier@maine.gov>; Trish Coppolino <patricia.coppolino@vermont.gov>; Brian Beneski <brian.beneski@maine.gov>; Margaret Bradley <margaret.bradley@dem.ri.gov>; Phil Cole <Phil.cole@dep.nj.gov>; Malinowski, Kerri <Kerri.Malinowski@maine.gov>; Steve.Maybury@dep.nj.gov; shannon.pociu@ct.gov
Subject: Reminder: PFAS - States/EPA Roundtable Call Tomorrow - June 23rd - and AFFF disposal info

To: NEWMOA PFAS Working Group

A quick reminder that our **states/EPA roundtable conference call is Thursday June 23rd from 1:30 to 3:30**. The call-in number is: (513) 386-0000 and the access code is: 379391#. On this call, we'll determine the standing monthly week/day/time for this monthly states/EPA roundtable call. See below for the tentative call agenda (I think we'll only get through #1 on this first call) – and below that, information provided by EPA Region 2 regarding PFAS and waste treatment/disposal:

1. Treatment/Disposal of wastes containing PFOS and PFOA (see attached "02 Chap2 CDV.PDF" for some general information)
    a. How are we advising people to dispose of AFFF (CERCLA liability for landfill disposal)
    b. How effective is solidification with Portland Cement at preventing leaching (EPA method 1315)
    c. Thermal treatment (MSW incinerators have refused PFC containing materials in NY due to air emission concerns)
2. Investigation of sites

    a. Conceptual model of source material remaining from AFFF release (microscopic analysis?)
    b. Cross contamination of samples (lab equipment, sampling equipment, clothing)

c. Update for ongoing investigations (lessons learned)

2. Remediation

   a. Effectiveness of ISS for source areas.
   b. Thermal desorption for contaminated soils
   c. In-situ carbon (funnel and gate, PlumeStop)

Information provided by EPA Region 2:

- Laboratory Scale Incineration Testing of Fluorotelomer-Based Polymers: Final Enforceable Consent Agreement (ECA) and Testing Consent Order; Docket ID number EPA-HQ-OPPT-2004-0001.
- Laboratory Scale Incineration Testing of Fluoropolymers: Final Enforceable Consent Agreement (ECA) and Testing Consent Order; Docket ID number EPA-HQ-OPPT-2003-0071.

- Best Practices Document by Fire Fighting Foam Coalition (FFFC): http://www.fffc.org/images/bestpracticeguidance2.pdf

- Australia document (see attached – Seow doc)

- Canada regulations: https://www.ec.gc.ca/toxiques-toxics/default.asp?lang=en&n=25259B8F-1

- EU regulations (Directive 2006/122/EC): http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2006:372:0032:0034:en:PDF

Additional notes:

- EPA regulations restrict the production and importation of PFOS-based products, including firefighting foams. However, the Agency's SNUR regulations do not affect the continued use of existing stocks of the PFOS-based chemicals that had been manufactured or imported into the U.S. before SNURs took effect in 2002. More information of PFOS regulation under the Toxic Substances Control Act (TSCA): https://www.gpo.gov/fdsys/pkg/FR-2002-03-11/html/02-5746.htm.

- Canada and EU have banned the use of C8-based AFFF (except for some critical uses) and require these foams to be disposed as hazardous waste.

- The preferred method to dispose and degrade C8 foam stock is high temperature thermal incineration (at greater than 1100 degrees C due to the stability of C-F bond).